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Research Product 85-15

**Guidelines for Conducting a
Training Effectiveness Evaluation (TEE)
Volume II: Data Collector's Manual**

**ARI Field Unit at Fort Bliss, Texas
Systems Research Laboratory**

February 1985



U. S. Army Research Institute for the Behavioral and Social Sciences

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) <p>The Data Collector's Manual presents evaluation questions and corresponding rating scales for use by data collectors in the conduct of a Training Effectiveness Evaluation. It also provides a glossary of training terms, materials for self-instruction, and a job performance aid for use in the field. Related reports are RP 85-14 and RP 85-16.</p>																	

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**Guidelines for Conducting a
Training Effectiveness Evaluation (TEE)
Volume II: Data Collector's Manual**

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FOREWORD

The Guidelines for Conducting a Training Effectiveness Evaluation (TEE), Volumes 1-3 were developed in response to Army Training Study HRN 79-269, entitled Methodology for Training Effectiveness Analysis (TEA).

The three volumes of the Guidelines explain how to use the TEE methodology to evaluate a course of instruction and to formulate revisions for correcting training deficiencies, in ongoing courses and in training for operational tests (OT's) of new or improved equipment. Both product analyses of training materials and process analyses of training methods are covered by the Guidelines. Volumes I and III are directed toward the TEE analyst and associate analysts and explain how to conduct a TEE and how to remedy deficiencies, respectively. Volume II addresses the needs of the TEE data collector.



EDGAR M. JOHNSON
Technical Director

GUIDELINES FOR CONDUCTING A TRAINING EFFECTIVENESS EVALUATION
VOLUME II: DATA COLLECTOR'S MANUAL

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INTRODUCTION

You are about to participate as a data collector in a Training Effectiveness Evaluation (TEE). The data you collect as you observe the training, along with other information, will be used to identify portions of the course that might not be working as well as they should and to recommend any changes that ought to be made in the course.

This Data Collector's Manual contains the materials you will need during your training as a data collector. The TEE Analyst, who is in charge of the TEE, will spend a few days with you to familiarize you with the TEE and train you in the use of the data collection worksheets, which he will provide. The worksheets will contain questions from the Master List of Evaluation Questions. The parts of that list that are important for you to understand are contained in the second part of this manual.

This manual also includes a copy of the Job Performance Aid for Process Evaluation, which provides detailed guidance for those TEE questions which cannot be rated without directions beyond what is included in the worksheets.

The last section of this manual contains definitions of important terms used on the worksheets and some study materials on "task level," an important TEE concept. It is important for you to master the Task Level Classification System because several of the worksheet questions (e.g., 45, 46, and 50) are applicable only to certain task levels and not to others.

The Guidelines are intended for use by all Army agencies involved with training for existing systems and OT's for new or improved systems. Using agencies are encouraged to forward comments concerning the TEE methodology and Guidelines to the Chief, USARI Fort Bliss Field Unit, ATTN: Mr. Gary Sarli, P.O. Box 6057, Fort Bliss, Texas 79906-0057.

INSTRUCTION ON TASK LEVEL

Self-Instruction

Study the material in the following section and read the directions following this section titled "Classification Practice." Then do the practice items which follow it, reading the feedback after each one.

THE CLASSIFICATION SYSTEM:

The following classification system is used in all TEE procedures. It is applied to the three main parts of instruction: objectives, tests, and instructional presentations.

Each objective, test item, or piece of presentation, can be classified according to what the student must do, that is, the TASK to be performed.

There are two main TASKS a student can perform:

1. He can REMEMBER information, or
2. He can USE information to do something.

REMEMBER

USE

EXAMPLE:

Here are two test items:

1. The symbol for resistor is _____.
2. Using your knowledge of electronic theory, what would happen in the circuit shown below if the load resistance were shorted?

These two test items differ with respect to what the student is supposed to do (TASK). In number 1, the student has to REMEMBER something, and in number 2, the student has to apply or USE his knowledge in a new situation.

More examples are shown below and on the next page.

EXAMPLES:

The following examples illustrate the REMEMBER task level:

1. The symbol for resistor is _____.
2. List the names of the parts in the wind-indicating instrument.

3. List the critical characteristics of a jet pump.
4. Define the various kinds of clouds (cumulus, stratus, etc.).
5. List in order the steps for cleaning an M-16 rifle.
6. Describe the procedures for preparing and sending a radio message.
7. List the steps involved in calculating magnetic heading given true heading, magnetic variation, and compass deviation.
8. State the general rule for solving for circuit current, given voltage and resistance.
9. State the principles of leadership.
10. Recall the reasons why hydraulic fluid contamination must be avoided.

The following are examples of the USE task level:

1. Which of the pumps are jet pumps?
2. Given photographs of clouds, sort them according to type (cumulus, stratus, etc.)
3. Clean an M-16 rifle.
4. Prepare and send a radio message.
5. Calculate the magnetic heading from true heading, magnetic variation, and compass deviation.
6. Given the values for voltage and resistance, calculate the current flow.
7. Describe several potential courses of action in a given management situation and select the best one.
8. Predict what is likely to occur if the hydraulic fluid were contaminated.

THE USE LEVEL CAN BE FURTHER DIVIDED INTO TWO TYPES:

1. USE-UNAIDED in which the student has no aids except his own memory.
2. USE-AIDED in which the student has a job aid for performing the task.

EXAMPLES:

- USE-AIDED:** A pilot's preflight checklist is a USE-AIDED procedure. The pilot does not have to remember the steps or their order because they are on the checklist. The pilot does need to perform the steps correctly.
- USE-UNAIDED:** "Field-strip an M-16 rifle." Here, the student must remember the steps in the correct order, and perform them correctly.

In summary:

- o The REMEMBER level involves "pure" remembering
- o The USE-UNAIDED level involves remembering what is to be used, and then using it
- o The USE-AIDED level involves "pure" using

Procedures for Determining Task Level

- Step 1. Decide whether the student is to REMEMBER or USE information.
- Step 2. If the student is to USE information, decide whether the task level is USE-AIDED or USE-UNAIDED.

Classification Practice

In this section, sample objectives and sample test items are given for you to classify according to the scheme just presented. In the space provided you can give your reasons for the classification.

Some of the objectives and test items will be difficult to classify. There are three reasons for this. First, many of them are not "good" ones; they are written in such a way that it may not be clear what behavior is required or what content is to be taught. (They are, however, fairly typical.) Second, all of them are taken out of context and may deal with unfamiliar topics. Therefore they are difficult to classify because information about the job is not provided. Third, some examples were chosen deliberately to be hard to classify, so that classification problems could be illustrated.

For these reasons you should not expect to be able to correctly classify all of these objectives and test items (or any others) immediately.

When you finish classifying each item yourself, turn the page for the FEEDBACK on that item. Look at the reasons for the item's classification and compare them to your own.

- I. OBJECTIVE: Without the aid of references, list in the correct order the steps for shifting from a lower to a higher gear in a manual transmission car.

Task Level? _____

1. OBJECTIVE: Without the aid of references, list in the correct order the steps for shifting from a lower to a higher gear on a manual transmission car.

Task Level? REMEMBER

Since the student is "listing" a series of steps, rather than actually performing them, the task level is "remember."

2. OBJECTIVE: Calculate the cost of gas per mile to the nearest tenth of a cent given (1) miles driven, (2) gallons of gasoline used, (3) cost per gallon of gas, and the following formula:

$$\text{Cost of gas per mile} = C = \frac{M}{G}$$

where M = miles driven, to nearest mile

G = gallons of gasoline, to nearest tenth gallon

C = cost of gasoline per gallon

Task Level? _____

2. OBJECTIVE: Calculate the cost of gas per mile to the nearest tenth of a cent given (1) miles driven, (2) gallons of gasoline used, (3) cost per gallon of gas, and the following formula:

$$\text{Cost of gas per mile} = C = \frac{M}{G}$$

where M = miles driven, to nearest mile

G = gallons of gasoline, to nearest tenth gallon

C = cost of gasoline per gallon

Task Level? USE-AIDED

The student is asked to perform a task (calculate cost of gas per mile). He is not merely remembering something, he must "use" the formula to solve for the unknown value. Since the formula is provided to the student the task is "aided."

3. OBJECTIVE: Describe, without references, the critical characteristics distinguishing rockets from missiles, according to the course test.

Task Level? _____

3. OBJECTIVE: Describe, without references, the critical characteristics distinguishing rockets from missiles, according to the course text.

Task Level? REMEMBER

The student is asked to describe something without references, from memory, so the task level is "remember."

4. OBJECTIVE: Without references, label the three basic components of the M-16 rifle.

Task Level? _____

4. OBJECTIVE: Without references, label the three basic components of the M-16 rifle.

Task Level? REMEMBER

The student must "remember" the basic components of the M-16 rifle.
It is not necessary for this information to be applied.

5. **OBJECTIVE:** Without reference to TM 9-2350-258-10, remove and replace a defective domelight lamp in the M48A5 tank, given a screwdriver, replacement lamp, and clean cloth.

Task Level? _____

5. OBJECTIVE: Without reference to TM 9-2350-258-10, remove and replace a defective domelight lamp on the M48A5 tank, given a screwdriver, replacement lamp, and clean cloth.

Task Level? USE-UNAIDED

The task level is "use," since the task actually involves removing and replacing the defective lamp, not merely recalling how to do it. It is "unaided" because the student has no job aid (in this case the TM) to guide him in performing the task. Note that although he is given some items (screwdriver, lamp, and cloth) which are necessary for task performance, they are not job aids.

6. OBJECTIVE: Solve for total power in a DC parallel circuit.

Task Level? _____

6. OBJECTIVE: Solve for total power in a DC parallel circuit.

Task Level? USE-UNAIDED

The task level is "use" because the student must solve problems. It is not "use-aided" because the formula for total power is not given.

7. Test Item: Destroy classified documents under routine conditions given the outline in OPNAVINST 5510.1 and KAG-1.

Task Level? _____

7. Test Item: Destroy classified documents under routine conditions given the outline in OPNAVINST 5510.1 and KAG-1.

Task Level? USE-AIDED

What does the student have to do? He must "destroy" classified documents. However, he is given references which outline the steps that must be performed to accomplish this. Therefore, the task level is "use-aided."

8. Test Item: State the radar signal characteristics used in identifying circular, sector, conical and steady scans on an analysis scope.

Task Level? _____

8. Test Item: State the radar signal characteristics used in identifying circular, sector, conical, and steady scans on an analysis scope.

Task Level? REMEMBER

The student is asked to state (recall) the characteristics of four different types of scans. At this time he is not asked to actually categorize a signal as a certain type of scan. Therefore, the task level is "remember."

9. OBJECTIVE: Recall the proper sequence of steps for testing a capacitor using a standard volt-ohm meter.

Task Level? _____

9. **OBJECTIVE:** Recall the proper sequence of steps for testing a capacitor using a standard volt-ohm meter.

Task Level? REMEMBER

Does the student have to "remember" something or actually perform the task? In this case he must only recall the steps. He is not asked to use the meter while testing a capacitor to see if anything is wrong with it.

10. Test Item: State Ohm's Law.

Task Level? _____

10. Test Item: State Ohm's Law.

Task Level? REMEMBER

State is a keyword for the "remember" level. The student is not asked to use the information about Ohm's Law - only to remember it.

11. Test Item: Troubleshoot electronic circuits from PATRIOT components in which no current is flowing.

Task Level? _____

11. Test Item: Troubleshoot electronic circuits from PATRIOT components in which no current is flowing.

Task Level? USE-UNAIDED

The student is asked to perform a task. It is not just recalling something; he must remember how to troubleshoot a circuit and then do it. No aid is given.

12. OBJECTIVE: Given the formula for capacitive reactance and the values of frequency and capacitance from a schematic, calculate capacitive reactance.

Task Level? _____

12. OBJECTIVE: Given the formula for capacitive reactance and the values of frequency and capacitance from a schematic, calculate capacitive reactance.

Task Level? USE-AIDED

What must the student do? He must "calculate" capacitive reactance given two values and the formula. In this case the formula is the memory aid. The task is therefore "use-aided."

13. **OBJECTIVE:** List the materials which are separable from lube oil by the Sharples oil purifier.

Task Level? _____

13. **OBJECTIVE:** List the materials which are separable from lube oil by the Sharples oil purifier.

Task Level? REMEMBER

The student is asked to state (recall) the materials which can or cannot be separated. He is not asked to do it. Therefore, the task level is "remember."

14. TEST ITEM (in a course for engineers who will eventually design equipment):

Explain how hydraulic systems work as described in class lectures and in Chapter 9 of the text.

Task Level? _____

14. TEST ITEM (in a course for engineers who will eventually design equipment):

Explain how hydraulic systems work as described in class lectures and in Chapter 9 of the text.

Task Level? REMEMBER

The student is asked to explain from memory what he learned about how hydraulic systems work. It is clearly "remember."

15. **OBJECTIVE:** Sort pictures of clouds into stacks by types, given labeled illustrations of identified cloud types.

Task Level? _____

15. **OBJECTIVE:** Sort pictures of clouds into stacks by types, given labeled illustrations of identified cloud types.

Task Level? USE-AIDED

This objective is an example of a pure "using" task. The illustrations of identified clouds are the "aid." There is no need to remember the characteristics of each type cloud: they are given. The student is asked to categorize pictures of new examples of clouds based on the characteristics in the labeled clouds.

16. TEST ITEM: Use your oscilloscope to calibrate the IOXMX-2817V test prod.

Task Level? _____

16. TEST ITEM: Use your oscilloscope to calibrate the 10XMX-2817V test prod.

Task Level? USE-UNAIDED

The student must perform the task. He must "calibrate" the test prod. He is not told how to do it; he must perform the job from memory. The task is therefore "use-unaided." The oscilloscope is a tool necessary to perform the task, but is not an aid because it does not tell him how to do the task.

17. **OBJECTIVE:** Given an incoming signal, the EW operator will identify it as being emitted from a particular type radar on a particular type of platform.

Task Level? _____

17. OBJECTIVE: Given an incoming signal, the EW operator will identify it as being emitted from a particular type radar on a particular type of platform.

Task Level? USE-UNAIDED

The student will analyze the incoming signal and classify it according to specific characteristics. The task level is "use." There is no memory aid, so the task is "unaided."

18. **OBJECTIVE:** Given diagrams that graphically represent how the steam cycle works, use them to discover how the auxiliary condensate system works.

Task Level? _____

18. **OBJECTIVE:** Given diagrams that graphically represent how the steam cycle works, use them to discover how the auxiliary condensate system works.

Task Level? USE-AIDED

What must the student do? The objective requires the student to use information about the steam cycle to explain how a new system works. The diagrams are given to "jog" the students' memory about how the basic steam cycle works. The objective is "use-aided."

Objectives for Discussion

Note: These are not necessarily "good" objectives, but their task levels should be clear.

1. Using TM-9-1410-530-14 and a PATRIOT launcher station prepared for reload in a simulated tactical field environment, perform missile reload.
2. Upon receipt of a warning order which changes the mission of your PATRIOT battalion in a field exercise, determine all specified and implied actions necessary to accomplish the mission.
3. Given the guidelines for determining message security classification, determine the security classification (Top Secret, Secret, Confidential, or Unclassified) for outgoing messages.
4. Given a picture of a Vulcan operator's console, state the function of each control and indicator as described in TM 9-2350-300-10.
5. Recall in writing the critical characteristics of ten types of Soviet aircraft.
6. Given the formula for Ohm's Law, $E=IR$, and any two values typical of the values encountered on the job, solve for the third value correct to two decimal places.

7. Given an ammunition storage locker containing four different kinds of Vulcan rounds and requests for certain kinds of ammunition, identify the appropriate rounds to fill each request.
8. State the general guidance for applying the rules of war and the tactical standard operating procedures that govern the conduct of an IHAWK battery as contained in TM 430-7.
9. Given a globe valve, rags, prussian blue, gasket material, packing, and tools, disassemble and reassemble the globe valve.
10. In accordance with FM 44-1, ACP 125, and TC 32-20, take the prescribed action in response to simulated enemy employment of electronic warfare which includes locating your transmitters, jamming, and imitative communications deception. There is no time to look at the reference documents during the exercise.
11. State the method for selecting the correct Vulcan firing mode as described in TM9-2350-300-10. Include the types of targets and conditions under which each mode is used.
12. Given an explanation of how to supply military troops from the text, illustrations to include Hitler's attack of Russia, the Battle of Midway, the Battle of the Bulge, and Sherman's march through Georgia, and a modern tactical scenario you have not seen before, discuss how the types of troops in the scenario should be supplied.
13. List the steps in boresighting the 20-MM M163A1 cannon.

Final Practice

NOTE: Again, these are not necessarily "good" objectives, and some could actually be classified as "goals" or "missions."

1. State from memory the primary mission of the Chaparral Air Defense Guided Missile System as described in FM 44-4.

Task Level: _____

2. Describe the method used by personnel in a Chaparral radar platoon to detect targets at or near maximum range.

Task Level: _____

3. As commander of a Vulcan Battery in a field exercise, issue a warning order to the platoons. It should include friendly and enemy situation, tentative primary and alternate positions, tentative primary and alternate routes, and any special instructions that deviate from unit SOP.

Task Level: _____

4. In a simulated electronic warfare (EW) environment, recognize the different types of external jamming encountered: spot jamming, barrage jamming, accidental inference, and atmospheric.

Task Level: _____

5. Given TM 9-2350-300-10 perform before operations preventative maintenance checks and services (PMCS) on the Vulcan Carrier (M163A1 System).

Task Level: _____

6. Describe the features of the Vulcan, Chaparral, Sgt York gun, STINGER, REDEYE, ROLAND, HAWK, IHAWK, Nike Hercules, and PATRIOT systems in order to be able to distinguish between them when referenced in later training.

Task Level: _____

7. State the actions a gunner must take immediately in the event of a potential cook-off, hang-fire, or stoppage when firing the VULCAN cannon.

Task Level: _____

8. Using target drones, towed targets, or Ballistic Aerial Target System (BATS) representing enemy aircraft, the Chaparral squad will detect, identify, acquire, engage, and kill targets, taking different types of courses at varying speeds and altitudes.

Task Level: _____

9. Given a coordinate square, a map with a legend identifying map symbols, and a programmed text on basic map reading methods, find the distance between two points specified by symbols in designated grid squares.

Task Level: _____

10. Given a manual containing guidelines for conducting an evaluation of an Army training course, evaluate the training.

Task Level: _____

11. Using a chart showing the characteristics of a properly maintained spark plug, sort spark plugs into two groups: acceptable and defective.

Task Level: _____

12. Given proper tools in a motor pool shop, replace a front wheel bearing on a 1/4-ton truck in less than 10 minutes.

Task Level: _____

13. List the points a battery air defense commander must consider in defending the battery against a ground attack assuming that early warning outposts detect the enemy in sufficient time to allow deployment of the battery to supplementary defensive positions. He must insure that:

- o The battery operations center is notified of impending attack without compromising any information of use to the enemy force.
- o A reaction force is assembled and tactically employed.
- o Battery assets available for defeating the enemy force are employed in a manner appropriate with terrain.
- o Mixed antitank/antipersonnel forces are deployed to locations external to the battery position area if appropriate.

Task Level: _____

APPENDIX A:
RELEVANT QUESTIONS FROM THE
MASTER LIST OF EVALUATION QUESTIONS

TESTING QUESTIONS

Test Consistency with Objectives

6. Do the CONDITIONS of the test item match the CONDITIONS of its OBJECTIVE?

Are the CONDITIONS under which the test item is administered the same as those stated in the OBJECTIVE?

RATING: Give one rating for each item within each OBJECTIVE on each test. Make notes in the "Description" column indicating the nature of the discrepancy(ies).

If the item and OBJECTIVE CONDITIONS match exactly, rate the item 1.

If there is a minor mismatch, rate it 2.

If there is a severe mismatch, rate the item 3.

EXAMPLE:

OBJECTIVE: "Given any resistor with four color bands, the student will follow the procedure for determining ohmic value as indicated by the color bands."

TEST ITEM: "For each of the resistors pictured below, determine the value in ohms, and write the value in the space next to each resistor."

The objective says the student will be given resistors, while the test item gives pictures. This might be close enough if the pictures are actual size and in color. Since this is a minor mismatch, it would be rated "2."

7. Do the STANDARDS of the test item match the STANDARDS of its OBJECTIVE?

Are the STANDARDS for the individual test item the same as those stated in the OBJECTIVE? (For many forms of written tests given at the REMEMBER TASK LEVEL, the STANDARDS are based simply on selection of the correct answer. In such cases, this question may not be applicable.)

RATING: Give one rating for each item within each OBJECTIVE. Make notes in the "Description" column indicating the nature of the discrepancy(ies).

If the item and the OBJECTIVE'S STANDARDS match exactly, rate the item 1.

If there is a minor mismatch, rate it 2.

If there is a severe mismatch, rate the item 3.

EXAMPLE:

OBJECTIVE "Given the formula for Ohm's Law, $E=IR$, and any two values typical of values encountered on the job, the student will solve for the third value correct to two decimal places."

TEST ITEM "Ohm's Law is $E=IR$. If $I=200$ ma., and $R=47K$ ohms, then $E=$ __ __."

The item should specify that accuracy to two decimal places is required. Since this is a minor mismatch, it would be rated "2."

Test Adequacy

8. For true-false, multiple choice, and matching items is only one answer correct?

For selected response items (true-false, multiple choice, and matching) there should be only one correct answer:

RATING: If there is only one correct answer, rate 1.

If more than one answer can be correct, rate 3.

EXAMPLE:

ITEM: "If you are driving down a steep grade, you would be likely to shift gears:

- a. down for power.
- b. up for power.
- c. down to decelerate.
- d. down to slow the vehicle.

Choices "c" and "d" are paraphrases of each other, giving two possibly correct answers. Therefore this item should be rated "3."

9. For short answer, fill-in, listing, and performance items are all acceptable answers in the answer key?

For constructed response items (short answer, fill-in, listing, and performance) multiple correct answers may be acceptable:

RATING: If all correct answers are in the answer key, rate 1.

If some correct answers are not in the answer key, rate 3.

11. Is the language of the test item easy for students to understand?

Considering the reading level and intelligence of the students, are any long sentences or difficult words used other than job-related words taught in the course?

RATING: If the language of the item is easy for the students, rate 1.

If the language is somewhat difficult, rate 2.

If the language of the item is very difficult, rate 3.

13. Is the answer to the test item given away by another item or group of items on the test?

RATING: If the answer is not given away, rate 1.

If other items give clues to the answer, rate 2.

If the answer can be found in other item(s), rate 3.

14. Is the answer to the test item dependent on answering a previous item or group of items correctly?

RATING: If the answer does not depend on other items, rate 1.

If previous items must be answered correctly in order to answer this item correctly, rate 3.

15. Are sketches and diagrams used in the test item easy to understand?

RATING: If sketches and diagrams are:

- easy to understand, rate 1.

- somewhat confusing, rate 2.

- very confusing, rate 3.

16. Is the test item tricky or misleading in that it points to an incorrect answer?

RATING: If the item is not misleading, rate 1.

If it is somewhat misleading, rate 2.

If the item is very misleading, rate 3.

18. When steps are scored, does the instructor use a checklist?

RATING: If a checklist is filled in completely, rate 1.

If a checklist is used as a reference or filled in partially, rate 2.

If a checklist is not used, rate 3.

21. Are test administration directions complete?

Instructions should be complete enough that different testers would tend to follow the same procedures.

RATING: If the directions are complete, rate 1.

If directions are provided, but are incomplete or unclear, rate 2.

If there are no administration directions, rate 3.

22. Do instructors follow the directions when administering the test? If there are no documented directions this question is not applicable.

RATING: If yes, rate 1.

If there are some variations from the test directions, rate 2.

If there are significant variations from the directions, rate 3.

23. Are adequate test instructions provided to the student?

Two types of instructions may be required:

1. Item instructions for groups of test items. These should be clear and should provide enough information to answer the items correctly. (Be sure to indicate which items the rating applies to on your worksheet.)

2. General instructions should state:

- o the test's purpose
- o any time limits
- o descriptions of test conditions
- o descriptions of test standards
- o how to respond to each item
- o general regulations

There should be no questions in a student's mind as how to take the test or how to behave during the test.

RATING: If yes, adequate test instructions to the student are provided, rate 1.

If instructions are provided but are not completely clear, rate 2.

If no instructions are provided, rate 3.

24. Does the final test integrate tasks as they are integrated in the "real world?"

If real world CONDITIONS call for tasks to be performed together or during the same period of time the test should simulate those CONDITIONS.

RATING: If yes, all tasks performed together on the job are performed together on the test, rate 1.

If tasks are only partially integrated, rate 2.

If the tasks are tested separately, rate 3.

25. Are tasks and task steps tested in the same sequence as they are performed in the "real world?"

RATING: If yes, the sequence is the same, rate 1.

If some tasks or steps are slightly out of sequence, rate 2.

If the tasks or task steps are in a very different sequence, rate 3.

26. Is the test free of external cues and help?

Were there any artificial cues or help? Instructors, evaluators, observers, and other students should not provide any assistance that will not be present in the real world.

RATING: If yes, that is, no cue or help was given during the test (other than clarification of the directions), rate 1.

If some "hints" are given, rate 2.

If assistance was given that would "give away" many correct answers, rate 3. (Additionally, test item scores should be recorded as "No Go's" for TEE purposes.)

PRESENTATION QUESTIONS

27. Are attention-getting/motivational techniques employed in the instruction?

Devices, such as cartoons, interesting subject matter-related stories, and analogies, can be used to arouse interest. There must also be appropriate positive rewards for learning and negative consequences for not learning. These rewards and consequences may be a normal part of many learning situations. For example, the possible satisfaction of passing the course or the disappointment of failing it is enough motivation for many students. Motivational devices in the instruction and/or special rewards and consequences are usually required because:

- o the students often have little motivation for learning, such as many Category IV trainees.
- o the students would consider the task evaluated in the TEE long and boring or difficult to learn.

RATING: If motivational devices are included in the instruction, rate 1.

If motivational devices are not included, rate 3.

28. Is the trainee attitude positive?

Do the trainees appear interested and actively participate in the instruction or do they do or say anything that shows that they don't care about the instruction or that they don't want to learn?

RATING: If students display a positive attitude toward instruction, rate 1.

If students appear indifferent, rate 2.

If students display hostility or frustration during the instruction, rate 3.

30. Is mastery of prerequisite skills verified prior to new instruction?

Prerequisite skills are subordinate skills which must be understood or mastered in order to learn a SUPERORDINATE SKILL taught later in the course. They can be verified by giving a test or asking a sample of the students how to perform them.

RATING: If prerequisite skills are verified, rate 1.

If prerequisites are not verified, rate 3.

31. Are the OBJECTIVES presented to the student?

Does the LESSON call for a statement of terminal performance required of the students for the OBJECTIVE and/or is the statement given in the instruction?

RATING: If the OBJECTIVES are presented to the student, rate 1.
If no OBJECTIVES are stated, rate 3.

35. Does STATEMENT HELP provide sufficient explanation?

NOTE: The purpose of STATEMENT HELP as defined here is to help in understanding the statement and in remembering it.

STATEMENT HELP may consist of:

- o Explaining how the statement relates to something the student already knows, why it is important, how it fits into the course
- o More explanation about what the statement means
- o Representing the statement with pictures, symbols, or flowcharts

RATING: If STATEMENT HELP gives sufficient explanation, rate 1.

If STATEMENT help gives insufficient explanation (merely restates the STATEMENT in the same words), rate 2.

If STATEMENT HELP is confusing, rate 3.

36. Does training include instruction on the use of required job performance aids?

Job performance aids should be adequately introduced and explained so that students will know how to use them. They should be clearly shown and referenced in examples and demonstrations.

RATING: If the job aid is explained, rate 1.

If the job is not explained, rate 3.

42. Do DEMONSTRATIONS show how to correct/avoid common errors?

If there are errors that are typically made on the job, methods for avoiding or correcting them should be included.

Consult a subject matter expert if necessary to determine the likelihood of common errors.

RATING: If explanations are given on how common errors can be corrected or avoided, rate 1.

If not, rate 3.

44. Are tasks and task steps DEMONSTRATED in the same sequence as they are performed in the "real world?"

RATING: If the order is the same, rate 1.

If the DEMONSTRATION is slightly out of sequence, rate 2.

If there is a very different sequence, rate 3.

45. Are memory aids used? (PRACTICE REMEMBERING only)

Memory aids may take several forms:

- o Flowcharts
- o Visuals such as graphics, patterns, and illustrations
- o Verbal devices such as rhymes, stories, chains of related words, and keywords

RATING: If a memory aid is used, rate 1.

If a memory aid is not used, rate 3.

46. Does each PRACTICE REMEMBERING item have the same content and format as the test item?

Here, PRACTICE and test items should be identical so that differences in content, wording, illustrations, etc. do not become a source of confusion to the student.

RATING: If the PRACTICE REMEMBERING item is the same as the test item, rate 1.

If the items are the same in content but differ in any other way, rate 2.

If the items differ in content, rate 3.

47. Are PRACTICE USING items sequenced from easy to hard?

TASKS are often difficult to learn when their full CONDITIONS and STANDARDS are imposed on early PRACTICE items. In order to teach someone how to perform such TASKS, it is often necessary to make it easier to do at the beginning. To do this, the CONDITIONS or STANDARDS can be relaxed. The ACTION, however, should never be changed.

For example, the TASK "field-strip an M-16 rifle in total darkness" is taught initially in the light.

RATING: If PRACTICE items are sequenced from easy to hard, rate 1.
If sequencing is not done, rate 3.

50. Does PRACTICE USING integrate tasks as they are integrated in the "real world?"

Make one rating per group of terminal learning objectives (TLOs) in terms of how well the PRACTICE situation matches that of the job. You may need to consult a subject matter expert. Be sure to record the task/TLO #s on your worksheet.

RATING: If PRACTICE integrates tasks as they are integrated in the "real world," rate 1.

If tasks are only partially integrated, rate 2.

If tasks are practiced separately, rate 3.

51. Are job performance aids (JPAs) usable?

The following points should be true of all JPAs:

- o Each step is self-explanatory to anyone who would perform the task.
- o Each step picks up where the previous step left off.
- o Illustrations that plainly identify components to be manipulated or identified are included where applicable.

RATING: If the job aid is easy to use, rate 1.

If the job aid is hard to use, rate 2.

If the job aid is unusable, rate 3.

52. Do all students use the job performance aid (JPA)?

RATING: If all students use the JPA, rate 1.

If up to 20% of the students do not use the JPA, rate 2.

If more than 20% of the students do not use the JPA, rate 3.

53. Does the TASK LEVEL of the PRACTICE item match that of the test item(s)?

Compare the ACTIONS of the PRACTICE item and test item(s) that go with it.

RATING:

Task Item TASK LEVEL

PRACTICE ITEM TASK LEVEL		REMEMBER	USE-UNAIDED	USE-AIDED
	REMEMBER	1	2	2
	USE-UNAIDED	2	1	2
	USE-AIDED	3	3	1

55. Does the Format of the PRACTICE item match that of the test item?

RATING:

Test Item Format

Practice Item Format		True/ False	Multiple Choice	Matching	Fill-In	Short Answer	Listing	Performance
	True/ False	1	2	2	2	2	2	2
	Multiple Choice	2	1	2	2	2	2	3
	Matching	2	2	1	2	2	2	3
	Fill-In	2	2	2	1	2	2	2
	Short Answer	2	2	2	2	1	2	2
	Listing	2	2	2	2	2	1	2
	Perfor- mance	2	2	2	2	2	2	1

56. Do the CONDITIONS of each FINAL PRACTICE item match those of the test item(s)?

Compare the CONDITIONS of FINAL PRACTICE to those of the test items that test it. This question applies only to the last PRACTICE given before the test.

RATING: If CONDITIONS are the same, rate 1.

If CONDITIONS are slightly different, rate 2.

If CONDITIONS are very different, rate 3.

57. Do the STANDARDS of each FINAL PRACTICE item match those of the test item(s)?

Compare the STANDARDS imposed during FINAL PRACTICE to those used in the test items that go with it. This question applies only to the last PRACTICE given before the test.

RATING: If STANDARDS are the same, rate 1.

If STANDARDS are slightly different, rate 2.

If STANDARDS are very different, rate 3.

58. Is FINAL PRACTICE free of external cues or help?

FINAL PRACTICE should not contain anything that will not appear on the test or on the job. The instructors, evaluators, observers, and other students should not provide assistance that won't be present in the "real world." Extra hints given during practice will cause more students to fail the test (once they don't have the assistance to rely on when taking the test). This question applies only to the last PRACTICE given before the test.

RATING: If yes, that is, no assistance is given during PRACTICE, rate 1.

If some hints are given that wouldn't be available on the job, rate 2.

If students are given excessive cues, prompts, or assistance such that many answers are given away, rate 3.

61. Do all students PRACTICE?

RATING: If yes, rate 1.

If up to 20% of the students do not PRACTICE, rate 2.

If more than 20% of the students do not PRACTICE, rate 3.

62. Do all students meet the required STANDARDS in FINAL PRACTICE?

This question applies only to the last practice given before the test.

RATING: If yes, rate 1.

If up to 20% of the students do not meet the required STANDARDS, rate 2.

If more than 20% of the students do not meet the STANDARDS, rate 3.

63. Is FEEDBACK provided for PRACTICE?

For both PRACTICE REMEMBERING and PRACTICE USING, students should be told whether they are right or wrong, and if wrong, what the correct answer is and why.

For step-by-step practice, FEEDBACK should be given for each step.

RATING: If FEEDBACK HELP (which explains answers) is given for wrong answers and correct answer only feedback is given for correct responses, rate 1.

If students are given only the correct answer after incorrect responses, rate 2.

If no FEEDBACK is provided, rate 3.

65. Is TEAM PRACTICE provided?

PRACTICE is the fundamental component of team training. TEAM PRACTICE allows for all of the members of a crew or team to get together and PRACTICE their TEAM FUNCTION.

RATING: If TEAM PRACTICE is provided, rate 1.

If there is none, rate 3.

66. Are TEAM PRACTICE CONDITIONS the same as (or as close as possible to) those of the real task?

When the members of a crew or team come together to practice their TEAM FUNCTION collectively, it should be done under CONDITIONS as close to the real task as possible.

If PRACTICE CONDITIONS are not close to those in the real task, important collective skills such as communication and coordination among team members may not be practiced adequately.

RATING: If TEAM PRACTICE CONDITIONS are as close as possible to those of the real task, rate 1.

If CONDITIONS are slightly different, rate 2.

If CONDITIONS are very different, rate 3.

NOTE: Be sure to record the correct TEAM FUNCTION number in the Task/TLO # column on your product evaluation worksheet.

67. Is TEAM PRACTICE FEEDBACK provided?

Teams should at least be told whether their PRACTICE mission was successful or not, and if not, what they did wrong.

RATING: If FEEDBACK HELP is provided, rate 1.

If team members are told "how they did," but are not told what they did wrong, rate 2.

If no FEEDBACK is given, rate 3.

NOTE: Be sure to record the TEAM FUNCTION number in the Task/TLO # column on your product evaluation worksheet.

70. Is the technical quality of written or spoken material adequate?

Whether text appears in print, in some other visual medium such as narration, or as spoken in a lecture or demonstration, it should meet the following standards:

- a. Each COMPONENT should be directed at the primary audience.
- b. The instruction should be performance-oriented rather than topic-oriented. It should tell "what to do" or "how to do it," rather than telling about a task.
- c. Main points should stand out. They should not get lost in detail, so that secondary points appear equal to main points. COMPONENTS should not be too wordy, either because there is too much detail (more than the essentials needed to perform the job), or because the material is redundant (with information being needlessly repeated).
- d. Information should be presented in an orderly manner so that it is not confusing. Check for:
 - o Redundancy between paragraphs or ideas
 - o Missing information
 - o Scattered information — information about the same main point not in one place
 - o Remote references — references to text or illustrations in other places
- e. Visual aids should communicate something. They must function in one or more of the following ways:
 - o Substitute for text or narration
 - o Lighten the burden of detail in text or narration
 - o Reinforce or summarize information in text or narration

- f. Is there a run-together format? A solid mass of print should be "chunked" visually so that separate points can be easily identified. Items in audio-visual presentations or lectures should also be distinguishable.
- g. Perspective — In visual media do visuals provide the viewer with an adequate frame of reference with which to judge size and distance?

RATING: Considering the criteria listed above, if most or all of the applicable criteria are met, rate 1.

If several applicable criteria are not met, rate 2.

If few applicable criteria are met, rate 3.

- NOTE:**
- (1) Be sure to note what the specific problems are in the Description column of your worksheet.
 - (2) You should make this rating for an entire LESSON unless material for certain OBJECTIVES merits different ratings.

71. Is the wording of written or spoken material easy for the student to understand?

Verbal instruction should not contain too many hard words, or many long sentences. Technical words related to the subject matter are acceptable as long as they are explained or the students have had previous training, so that they already know what they mean.

RATING: If the wording is easy to understand with few hard words or long sentences, rate 1.

If there are some hard words and long sentences, rate 2.

If there are many hard words and long sentences, rate 3.

72. Is the instructor's presentation or the narration easy to listen to?

For spoken material to be easy to listen to, its pace and pitch should be varied. It should not go on constantly at the same rate or at the same pitch so that it becomes monotonous. Also, continuous repetition of short patterns of pace and/or pitch which give speech a "sing-song" effect should be avoided.

In addition, speech should be understandable. It should not be too soft; speakers should not have speech impediments, or heavy accents, nor should they mumble.

RATING: If the instructor's speech or the narration is easy to listen to, rate 1.

If speech is dull and monotonous, rate 2.

If speech is hard to listen to, rate 3.

73. Is the instructor's presentation, the narration, or text material supported by visuals?

In order to maintain attention and interest and to aid students in understanding the material, verbal presentations should be supported by visuals. Visuals may include real equipment.

RATING: If the presentation is completely supported by visuals, rate 1.

If it is partially supported by visuals, rate 2.

If the presentation is not supported by visuals at all, rate 3.

74. Are visuals easily understood?

RATING: If visuals are easily understood, rate 1.

If visuals are understandable with effort, rate 2.

If visuals are very hard to understand, rate 3.

80. Do course administration directions make realistic demands of students and instructors?

RATING: If all demands are realistic, rate 1.

If some demands are unrealistic, rate 3 and note what they are.

81. Is the instructor/trainee ratio such that all students can see, hear, and receive FEEDBACK?

For the presentation of STATEMENTS and EXAMPLES, can every student see and hear what is being presented?

For PRACTICE, is there enough opportunity for the instructor to provide necessary FEEDBACK and FEEDBACK HELP to every student?

RATING: If the instructor/trainee ratio is such that all students can see, hear, and receive FEEDBACK, rate 1.

If a few students cannot see, hear, and receive FEEDBACK, rate 2.

If many students cannot see, hear, and receive FEEDBACK, rate 3.

EXAMPLE: If you see one or two soldiers stop what they are doing and wait until an instructor comes to help, rate this event a "2."

If you see several soldiers practicing without instructor supervision, or crowding around an instructor trying to get a clear view of a demonstration, or trying to get help from the same instructor at the same time, rate it a "3."

82. Does the instructor follow the methods in the Instructor Guide?

Compare the LESSON plan and other applicable LESSON materials with the instructor's performance.

Be sure to note the nature of departures from LESSON materials in the Description column of your worksheet.

RATING: If the instructor follows the methods outlined in the LESSON materials, rate 1.

If he follows them to some extent, rate 2.

If the instructor follows the methods in the LESSON materials very little or not at all, rate 3.

83. Is all of the content in the LESSON materials covered?

Compare the LESSON plan, student manual, operator's manual and other applicable LESSON materials with the content the instructor presents. Be sure to note the nature of departures from LESSON materials in the Description column of your worksheet. In self-paced settings, does the course manager insure that all of the LESSON materials are covered?

RATING: If all of the content found in the LESSON materials is covered, rate 1.

If much of the content is covered, rate 2, and indicate what was left out.

If very little of the content in the LESSON materials is covered, rate 3, and note what was omitted.

84. Did the instructor limit his teaching to the content in the LESSON materials?

RATING: If the instructor limited his presentation to the LESSON materials, rate 1.

If not, rate 3 and briefly note anything else he taught.

85. Is there enough space for all of the trainees?

- o Can everyone see and hear?
- o Where applicable, does everyone have an opportunity to practice?
- o Is there adequate "elbow room?"

RATING: If there is enough space for all the trainees, rate 1.

If it is a little crowded, rate 2.

If it is very cramped or some students cannot fit in the space at all, rate 3.

86. Is the instruction free of distractions?

Do sound or visual distractions or interruptions prevent students from learning?

RATING: If the instruction is free of distractions, rate 1.

If there are some distractions which are merely annoying, rate 2.

If distractions seriously interfere with or interrupt the instruction, rate 3.

EXAMPLE: Listed below are some examples of distractions that commonly occur in the training environment:

- o Noisy training site
- o Other observers present
- o Instructor or soldiers being trained leave before class is complete
- o Soldiers do pushups in class to stay awake
- o Equipment breaks down
- o Delays due to weather
- o Delays due to missing equipment

87. Is the lighting appropriate for the training situation?

Is there too little or too much light for reading when required or to see audio-visual displays or equipment?

NOTE: If the "real world" performance CONDITIONS require low light, then advanced PRACTICE events may need to be in comparable lighting conditions.

RATING: If the lighting level is appropriate, rate 1.

If the lighting is a little too dim or too bright, so that students have trouble reading or seeing displays and equipment, rate 2.

If the lighting is so dim or bright that students cannot read or see displays and equipment, rate 3.

88. Is the temperature appropriate for the training situation?

Are the trainees so warm that they have trouble concentrating on the instruction, or so cold that they are more interested in keeping warm than in paying attention to the instructor?

NOTE: PRACTICE may need to occur under real world CONDITIONS.

RATING: If the temperature is appropriate, rate 1.

If the temperature makes students uncomfortable, rate 2.

If the temperature seriously interferes with learning, rate 3.

EXAMPLE: If a soldier is shivering or sweating a lot, or complains about being uncomfortable because of the weather, rate 2.

If weather conditions result in training being stopped or postponed, rate 3.

89. Is the instructor's attitude positive?

Does the instructor behave in a manner that enhances the students' motivation for learning?

- o Does the instructor encourage questions?
- o Is he helpful?
- o Respectful of the trainees?
- o Tolerant of failure?
- o Available for assistance?

RATING: If the instructor's attitude is positive, rate 1.

If not, rate 3.

90. Are frequent breaks provided?

Are rest periods of at least 5-10 minutes provided every hour, and are longer breaks allowed once the instruction exceeds 3 or 4 hours?

RATING: If adequate rest periods are provided, rate 1.

If breaks are provided, but they are too short or infrequent, rate 2.

If breaks are not provided, rate 3.

91. Is the speed of presentation appropriate?

The rate at which STATEMENTS, EXAMPLES, or HELP are given should not be so fast that students cannot readily understand, or so slow that they become bored.

RATING: If the speed of presentation is appropriate, rate 1.

If too slow, rate 2.

If too fast, rate 3.

92. Was the allotted training time too long or too short?

Long training sessions in which the type of activity engaged in by the soldier does not change, combined with infrequent breaks can result in soldiers becoming bored or fatigued. The allotted time is too long when soldiers meet all the training objectives well before the class is supposed to end (for example, if more than one fourth of the allotted time remains when the class ends).

Training sessions that are too short may not allow enough practice time or otherwise reduce the amount of training given. Unless there was sufficient training time for all soldiers to perform, unassisted, the tasks listed in the training objectives at least one time to standard, the allotted time was too short for the training objectives.

RATING: If the training time is the appropriate length, rate 1.

If it is too long, rate 2.

If it is too short, rate 3.

93. Does equipment used in the training function properly?

If training devices (including real equipment used during the training) do not function as they should, the learning process can be degraded. For example, in a task involving meter calibration, if the equipment is not operating as it

should, students will not be able to see the task demonstrated properly or practice the task under normal conditions.

RATING: If all of the equipment normally used during the training events work properly, rate 1.

If some of the equipment malfunctions, but the nature of tasks demonstrated, practiced, or tested is not substantially changed, rate 2 and note what went wrong in the Description column of your worksheet.

If equipment problems substantially change the nature of tasks demonstrated, practiced, or tested, rate 3 and note what went wrong in the Description column of your worksheet.

EXAMPLE: If the instructor announces that the equipment is not working and simulates the task, omits part of the training, postpones training, or calls someone to repair the equipment, rate 3.

94. Is there anything unusual about the lesson materials, or do any incidents occur during training (that are not covered in other TEE questions) that would interfere with learning?

Describe any critical incidents on your worksheet.

RATING: If anything occurs which would adversely affect student learning, which is not covered in other TEE questions, rate 3.

APPENDIX B:
JOB PERFORMANCE AID FOR USE IN PROCESS EVALUATION

JOB PERFORMANCE AID FOR USE IN PROCESS EVALUATION

23. Are adequate test instructions provided to the student?

Two types of instructions may be required:

1. Item instructions for groups of test items. These should be clear and should provide enough information to answer the items correctly. (Be sure to indicate which items the rating applies to on your worksheet.)
2. General instructions should state:
 - o the test's purpose,
 - o any time limits,
 - o descriptions of test conditions,
 - o descriptions of test standards,
 - o how to respond to each item, and
 - o general regulations.

There should be no questions in a student's mind as to how to take the test or how to behave during the test.

RATING: If yes, adequate test instructions to the student are provided, rate 1.

If instructions are provided but are not completely clear, rate 2.

If no instructions are provided, rate 3.

51. Are job performance aids (JPAs) usable?

The following points should be true of all JPAs:

- o Each step is self-explanatory to anyone who would perform the task.
- o Each step picks up where the previous step left off.
- o Illustrations that plainly identify components to be manipulated or identified are included where applicable.

RATING: If the job aid is easy to use, rate 1.

If the job aid is hard to use, rate 2.

If the job aid is unusable, rate 3.

53. Does the TASK LEVEL of the PRACTICE ITEM match that of the test item(s)?

Compare the ACTIONS of the PRACTICE item and test item(s) that go with it.

RATING:

		Test Item TASK LEVEL		
PRACTICE ITEM TASK LEVEL		REMEMBER	USE-UNAIDED	USE-AIDED
	REMEMBER	1	2	2
	USE-UNAIDED	2	1	2
	USE-AIDED	3	3	1

55. Does the Format of the PRACTICE item match that of the test item?

RATING:

PRACTICE ITEM Format		Test Item Format							
			True/ False	Multiple Choice	Matching	Fill-In	Short Answer	Listing	Performance
		True/ False	1	2	2	2	2	2	3
		Multiple Choice	2	1	2	2	2	2	3
		Matching	2	2	1	2	2	2	3
		Fill-In	2	2	2	1	2	2	2
		Short Answer	2	2	2	2	1	2	2
		Listing	2	2	2	2	2	1	2
Perfor- mance	2	2	2	2	2	2	1		

70. Is the technical quality of written or spoken material adequate?

Whether text appears in print, in some other visual medium, such as narration, or as spoken in a lecture or demonstration, it should meet the following standards:

- a. Each COMPONENT should be directed at the primary audience.
- b. The instruction should be performance-oriented rather than topic oriented. It should tell "what to do" or "how to do it," rather than telling about a task.
- c. Main points should stand out. They should not get lost in detail, so that secondary points appear equal to main points. COMPONENTS should not be too wordy, either because there is too much detail (more than the essentials needed to perform the job), or because the material is redundant (with information being needlessly repeated).
- d. Information should be presented in an orderly manner so that it is not confusing. Check for:
 - o Redundancy between paragraphs or ideas,
 - o Missing information,
 - o Scattered information -- information about the same main point not in one place, and
 - o Remote references -- references to text or illustrations in other places.
- e. Visual aids should communicate something. They must function in one or more of the following ways:
 - o Substitute for text or narration,
 - o Lighten the burden of detail in text or narration,
 - o Reinforce or summarize information in text or narration.
- f. Is there a run-together format? A solid mass of print should be "chunked" visually so that separate points can be easily identified. Items in audio-visual presentations or lectures should also be distinguishable.
- g. Perspective -- In visual media do visuals provide the viewer with an adequate frame of reference with which to judge size and distance?

RATING: Considering the criteria listed above, if most or all of the applicable criteria are met, rate 1.

If several applicable criteria are not met, rate 2.

If few applicable criteria are met, rate 3.

NOTE: Be sure to note what the specific problems are in the Description column of your worksheet.

89. Is the instructor's attitude positive?

Does the instructor behave in a manner that enhances the students' motivation for learning?

- o Does the instructor encourage questions?
- o Is he helpful?
- o Respectful of the trainees?
- o Tolerant of failure?
- o Available for assistance?

RATING: If the instructor's attitude is positive, rate 1.
If not, rate 3.

APPENDIX C:
GLOSSARY TERMS

GLOSSARY TERMS

You will use the following terms during the TEE. They are arranged in logical order to make them easier to study. The TEE Analyst will review and discuss them with you before you begin to collect data.

Terms Related To Content Types

- CONTENT TYPE:** A category of subject matter which requires the same general kind of learning strategies. Content types include fact, concept, procedure, rule, and principle (see entries for each content type).
- FACT:** A simple piece of information to be remembered, such as an object, event, name, part, function, location, or date, alone or in combination with others.
- CONCEPT:** A set of specific objects, symbols, or events, which are grouped together on the basis of shared (critical) characteristics and which can be referenced by a particular name or symbol.
- CRITICAL CHARACTERISTICS:** A set of features which define a concept. Any object, symbol, or event which has those features is included in the concept class. Anything which lacks even one of the features in the set is not a member of the concept class (that is, a non-example).
- PROCEDURE:** A set of ordered steps designed to solve a specific problem that always presents itself in the same way.
- RULE:** A set of ordered operations or steps which, when applied, will solve a particular type or class of problems.

Terms Related to Presentation Components

- PRESENTATION COMPONENT OR COMPONENTS:** A basic unit of instruction: either a statement, example, practice, or feedback.
- STATEMENT:** A presentation component in which the student is given a statement of a fact, a concept definition, the steps of a procedure or rule, or a statement of a principle.
- STATEMENT HELP:** Additional information given following the presentation of a statement to aid students in understanding it.

EXAMPLE:	A presentation component in which the student is told or shown how a statement of a concept, procedure, rule, or principle applies in a specific case. Also the specific case itself which possesses the critical characteristics of the concept class.
NON-EXAMPLE:	An object, symbol, or event which does not contain all of the critical characteristics of a concept class, usually used in contrast to an example during instruction.
DEMONSTRATION:	An actual performance of a procedure for purposes of showing the learner how it is done. Demonstrations are usually best when live or conducted with communications media (film, videotape, tape/slides), but may be written when necessary.
PRACTICE:	A presentation component in which students are given the opportunity to remember facts, classify examples and non-examples of concepts, perform procedures, demonstrate rules, or apply principles.
FEEDBACK:	Information given to a student as to the correctness of a practice or test performance.
FEEDBACK HELP:	Explanation of why an answer to a test or practice item was wrong.
TRAINING EVENT:	A period of instruction with a specific purpose usually involving one or two presentation components.
LESSON:	A unit of instruction teaching one or more tasks or parts of tasks usually encompassing a short series of training events.

Terms Related to Tasks and Objectives

TASK:	A highly specific component of a job stated in terms of a verb and an object with conditions and standards of performance.
OBJECTIVE:	A precise statement of a behavior to be learned containing a statement of the required action along with conditions and standards of performance.
TERMINAL LEARNING OBJECTIVE (TLO):	A specific description of the action, with conditions/standards, to be performed after training. Derived from job performance measure, TLO's are to be attained during training. TLO's are broken down into their component parts which are documented as learning objectives which may be further divided into learning steps.

**LEARNING
OBJECTIVE (LO):**

A subunit of terminal learning objective consisting of a precise description of what is to be learned in terms of the expected student performance under specified conditions to accepted standards. These learning objectives identify the mental skills, information, attitudes, or physical skills that are required to perform the terminal learning objective. (See Terminal Learning Objective.)

CONDITIONS:

The "givens" of a performance. They describe the circumstances under which the task (objective, or team function) is performed. Conditions are those things which are specifically given or denied to the student at the time he performs the action specified in the objective.

STANDARDS:

The portion of a task, objective, or team function which specifies how well the action must be performed.

TEAM FUNCTION:

An action to be performed by a team or crew requiring multiple tasks to be performed by individuals in conjunction with each other.

Terms Related to Training Events

**CLASSROOM
INSTRUCTION:**

A lecture or discussion involving a group of students and an instructor. Statements, statement help, examples, and example help are the most commonly used presentation components in the classroom; however, practice, feedback, and feedback help could possibly be employed for some non-equipment related tasks or for remember level objectives.

HELP SESSIONS:

Instruction of any of a number of the types held in addition to the regular course instruction to aid students who need additional help. Statement or example help as well as practice and feedback would be the typical presentation components employed.

INDIVIDUAL STUDY:

A situation in which students are allowed to study on their own. It could follow classroom instruction or it could occur in individualized instructional courses where students typically proceed at their own pace.

**INTEGRATED
PRACTICE OR TEST:**

Practice or testing of two or more tasks in conjunction with each other at a high level of realism or in an operational setting. This may be done by an individual, a group performing individual tasks, or a team performing team functions.

ORAL TEST:

Assessment of how well students can perform at any task level using spoken responses by the students.

PERFORMANCE TEST: Assessment of how well students can perform tasks at the use task levels in isolation from other tasks.

TEAM PRACTICE: Practice of a team function by all crew/team members in a realistic setting.

WRITTEN TEST: Assessment of how well students can perform at any task level using paper and pencil tests.

Miscellaneous Terms

COMMON ERRORS: Errors commonly made while performing a task on the job.

JOB PERFORMANCE AID (JPA): Any written or pictorial device showing the steps in a procedure or rule or giving a decision rule for concept classification. Used as an aid during job performance.

TEST FORMAT: The type of test item used in an examination, either true/false, multiple choice, matching, fill-in, short answer, listing, or performance.